

Work Order ID 56052

February 9, 2010 1:23:49 PM



Page 1

Item ID: D3488-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade Fitting Assembly, LH

Start Date: 2/09/10 Start Qty: 10.00



Cust Item ID:

Required Date: 2/15/10 Req'd Qty: 10.00

Customer:

Reference:

Run Start



Approvals:

Process Plan:

PL

Date: 10-2-09

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3488	Rev B								
100		0.00							
	DOOSAN LATHE					10	0		
Doosan	Memo	0.00							
Doosan Lathe	1-Turn as per Dwg DSK 101 & Folio FA625 2-Deburr								
110		0.00							
	QC2- Inspect parts off machine FAI/FAIB					10	0		
QC	Memo	0.00							
Quality Control									
120		0.00							
	HAAS CNC VERTICAL MACHINING #1					10	0		
HAAS 1	Memo	0.00							
HAAS CNC vertical machine #1	1-Machine as per Folio FA625 & Dwg D3488 2-Deburr								

MMZ
10/03/28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 56052

February 9, 2010 1:23:49 PM



Page 2

Item ID: D3488-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade Fitting Assembly, LH

Start Date: 2/09/10 Start Qty: 10.00



Cust Item ID:

Required Date: 2/15/10 Req'd Qty: 10.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00		MW 10/03/28		10	8		
140 QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00		am 10/03/29		10	8		
150 HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00		el 10/03/30		(410)	8		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 56052

February 9, 2010 1:23:49 PM



Page 3

Item ID: D3488-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade Fitting Assembly, LH

Start Date: 2/09/10 Start Qty: 10.00



Cust Item ID:

Required Date: 2/15/10 Req'd Qty: 10.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160



Powdercoat

Powder Coating

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

M113170

Memo

0.00

START TIME: 10:00AM OVEN TEMPERATURE:
10:30AM FINISH TIME: 320°F

7 94 10/03/30

X10 9

170



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

BR 10-3-30

10 9

180



HandFinish

Hand Finishing

HandFinishing

0.00

Memo

0.00

Install Inserts as per Dwg D3488

BR 10-11-15 10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 56052

February 9, 2010 1:23:49 PM



Page 4

Item ID: D3488-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Blade Fitting Assembly, LH

Start Date: 2/09/10 Start Qty: 10.00



Cust Item ID:

Required Date: 2/15/10 Req'd Qty: 10.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

10/04/16

(46)

Quality Control

200

Identify as per dwg & Stock Location: AP-7

0.00



Packaging

Memo

0.00

Packaging

(10)

BR 10-4-16

210

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/04/19

MF
10-4-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Page 1

February 9, 2010 1:23:53 PM

Work Order ID: 56052

Parent Item: D3488-041

Parent Item Name: Blade Fitting Assembly, LH

Start Date: 2/09/10

Required Date: 2/15/10

Comments: IPP Rev:A New Issue 06-02-28 JLM
IPP Rev:B As per Rev B 06-03-30 JLM
IPP Rev:C Now On Doosan Lathe JLM Verified BY:DD

Start Qty: 10.00

Required Qty: 10.00

Component Item ID/	Replacement	Mfg/	Bin	Primary	Last	Route	Unit of	Qty on	Remaining	Qty	Date	Status
ALS7-1032-225		Purchased	No				Each	877.0000	40.0000			

INSERT

Warehouse
Location

Main Warehouse

ST	110 768	877
	100895	21
	100896	102
	102018	102
	110118	52
	111529	300
	111581	300

710

BR 10-7-15

D6103-003

Manufactured No

Each 53.0000 10.0000

Round Billet, Aluminum

Warehouse
Location

Main Warehouse

MAT		53
	33275	2
	36236	4
	42281	1
	50371	2
	54271	44

50371

55430

17
3
3

SL 10/03/28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	56052
Description: Blade Fitting, LH / Turning Detail for D3488-1/-2	Part Number:	D3488-1
Inspection Dwg: D3488 / DSK101 Rev: B / D		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
Ø2.150	+/-0.005	2.148	✓			
Ø2.780	+/-0.005	2.780	✓			
Ø3.125	+/-0.010	3.126	✓			
Ø3.346	+/-0.010	3.346	✓			
0.125 x 45°	+/-0.010 x +/-0.1°	120x45°	✓			
8.000	+0.030/-0.000	8.013	✓			
9.250	+/-0.010	9.249	✓			
0.188	+/-0.010	.188	✓			
R0.032	+/-0.010	.032	✓			
R0.062	+/-0.010	.062	✓			
Ø0.297	+0.005/-0.001	.300	✓			
Ø0.430	+/-0.010	.432	✓			
0.100	+/-0.010	.099	✓			
0.125	+/-0.010	.128	✓			
2.620	+/-0.010	2.618	✓			
3.500	+/-0.010	3.499	✓			
1.005	+/-0.010	1.004	✓			
Ø0.484	+0.005/-0.001	.486	✓			
1.180	+/-0.010	1.180	✓			
3.150	+/-0.010	3.149	✓			
3.070	+/-0.010	3.070	✓			
R0.063	+/-0.010	.063	✓			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	54052
Description: Blade Fitting, LH / Turning Detail for D3488-1/-2		Part Number:	D3488-1
Inspection Dwg: D3488 / DSK101 Rev: B / D		Page 2 of 2	

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Milling Section						
Ø0.508	+0.006/-0.001	0.509	✓			
0.750	+/-0.010	0.748	✓			
1.500	+/-0.010	1.496	✓			
11.18	+/-0.030	11.18	✓			
R0.062	+/-0.010	0.063	✓			
0.125	+/-0.010	0.130	✓			
0.590	+/-0.010	0.587	✓			
0.793	+/-0.010	0.800	✓			
1.351	+/-0.010	1.349	✓			
1.317	+/-0.010	1.316	✓			
1.802	+/-0.010	1.799	✓			

Measured by: JL / MMF	Audited by: [Signature]	Prototype Approval:	N/A
Date: 9/10/25 / 10/03/27	Date: 10/03/29	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.03.31	New Issue	KJ/JLM	
B	08.09.19	Reformat P/O D3488-041	KJ/JLM	
C	08.12.02	Dimension 8.000 removed	KJ/JLM	[Signature]

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

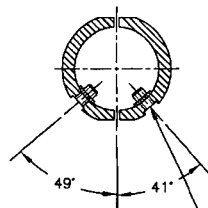
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

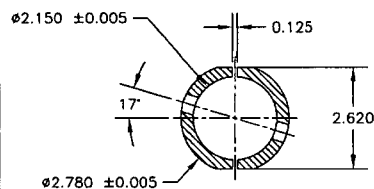
2.148
149

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 36052
BY 10-2-09



SECTION B-B

Ø0.297
C BORE Ø0.430 x 0.100
INSTALL ALS4-1032-225 (OR AKS4-1032-225
OR ALS7-1032-225 OR AKS7-1032-225)
INSERTS AFTER FINISH
(4 PLACES)



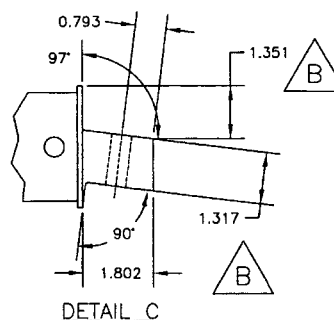
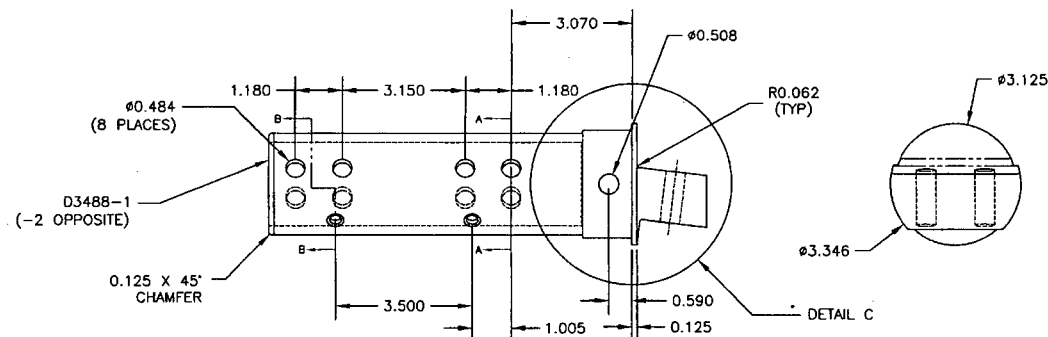
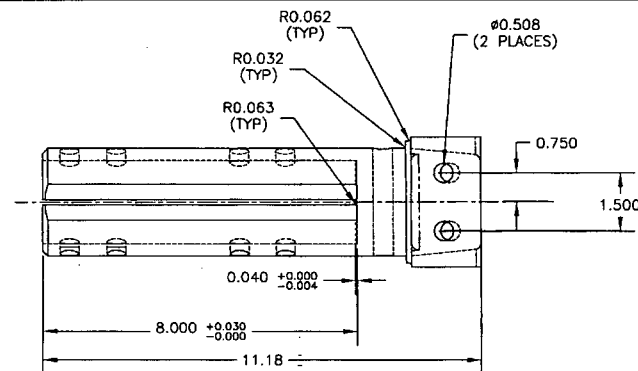
SECTION A-A

D3488-041/-042 BLADE FITTING ASSEMBLY PARTS LIST

QTY -041	QTY -042	PART NUMBER	DESCRIPTION
X		D3488-041	BLADE FITTING ASSEMBLY (LH)
	X	D3488-042	BLADE FITTING ASSEMBLY (RH)
1		D3488-1	BLADE FITTING (LH)
	1	D3488-2	BLADE FITTING (RH)
4	4	ALS4-1032-225 or AKS4-1032-225 or ALS7-1032-225 or AKS7-1032-225	INSERT

D3488-041/-042 BLADE FITTING

- MATERIAL: MAKE D3488-1/-2 FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9 (REF. DART MATERIAL SPEC M7075T73R)
ACID ETCH, ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
- FINISH:
- BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- INSTALL INSERTS AFTER POWDER COAT
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED



DETAIL C

D3488-041 SHOWN (D3488-042 OPPOSITE)

RELEASED
06-03-07 PH
REV. 03
EN #739

COPYRIGHT © 2005 BY DART AEROSPACE USA, INC.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.

B	06.03.15	CHANGE THICKNESS
A	05.12.20	NEW ISSUE
DESIGN PH	DRAWN BY PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED #	APPROVED #	DRAWING NO. D3488
DATE 06.03.15	TITLE BLADE FITTING	REV. B SHEET 1 OF 1 SCALE 1:3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries